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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,903	10/10/2003	Jeffrey J. Spiegelman	3194.1026-001.	3062

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EXAMINER

CARRILLO, BIBI SHARIDAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/683,903	SPIEGELMAN ET AL.	
	Examiner	Art Unit	
	Sharidan Carrillo	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19,21,23,25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 20,22 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19,21,23,25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/24/04, 12/01/04</u> | 6) ☐ Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 20, 22, and 24 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:
2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, 21, 23, 25-26, drawn to a oxygen purge gas, classified in class 134, subclass 26
 - II. Claim 20 and 24, drawn to purge gas comprising an inert gas, classified in class 134, subclass 21.
 - III. Claim 22, drawn to purge gas comprising extra clean dry air, classified in class 134, subclass 30.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation. The invention of Group I is directed to an oxygen purge gas in comparison to the invention of Group II which is directed to a purge gas comprising an inert gas.

Inventions I and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In

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the instant case the different inventions have different modes of operation. The invention of Group I is directed to a purge gas comprising oxygen in comparison to the invention of Group III which is directed to a purge gas comprising XCDA.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation. The invention of Group II is directed to a purge gas comprising an inert gas in comparison to the invention of Group III which is directed to XCDA.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 22 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 8-9, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Somekh (6427703).

In reference to claims 1, and 8-9, Somekh teaches purging a lithography

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chamber with pure oxygen gas to remove carbon contamination (Figs. 2a, 4) and removing the contamination with a vacuum pump (col. 5, lines 35-40, col. 6, lines 20-25). The limitations of an AMC concentration less than 1ppb reads on an AMC having a concentration of zero. Specifically, the claimed limitation reads on a purified purge gas with no AMC contaminants present. Therefore, the limitations of cleaning with pure oxygen meets the claimed limitations. In reference to claim 8, refer to the abstract which teaches removing contaminants from surfaces of components within the chamber. In reference to claim 9, refer to col. 11, lines 1-5. In reference to claim 25, refer to col. 10-11 bridging.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 10-15, 18-19, 21, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh (6427703), as applied to claims 1-5, 8-9, and 25 as described in paragraph 4 above, and further in view of Van Schaik et al. (6724460).

Somekh fails to teach purging with an inert gas. Van Schaik et al. teach in-situ cleaning of optical components for use in a lithographic apparatus. In col. 4, lines 1-22, Van Scheik teach purging with nitrogen. It would have been obvious to a person of ordinary skill in the art to have modified the method of Somekh to include purging with an inert gas, since Van Schaik et al. teach it is conventional to purge with an inert gas in order to remove contaminants from the lithographic apparatus.

In reference to claim 12, Somekh fails to teach an oxygen concentration between 1-25% by volume. Van Schaik et al. teach the concentration of the oxygen containing species up to 20% for purposes of increasing the cleaning effectiveness in order to remove large amounts or particularly strongly adsorbed contaminants. It would have been obvious to a person of ordinary skill in the art to have modified the method of Somekh to include increasing the oxygen concentration, as taught by Van Schaik et al. for purposes of increasing the cleaning effectiveness in order to remove contaminants.

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In reference to claims 13-15, the examiner interprets the limitations as an oxygen purge gas containing no AMC contaminants. Therefore, the limitations are taught by Somekh since Somekh teaches purging with pure oxygen. In reference to claims 18-19 and 26, refer to col. 10-11 bridging of Somekh. In reference to claim 21, refer to the teachings of Van Schaik et al. In reference to claim 23, refer to the teachings of Somekh.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-5, and 8-11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 10-11 of copending Application No. 10/683904 in view of Somekh (6427703).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are directed to the removal of airborne contaminants from a surface and purifying a purge gas.

The '904 application teaches a purge gas but fails to teach oxygen. Somekh et

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al. teach purge gases comprising oxygen for removing contaminants from a substrate surface. It would have been obvious to modify the method of '904 to include conventional gases, such as oxygen, as taught by Somekh for purposes of purging the substrate surface.

11. Claims 12-15, 18-19, 21 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 10-11 and 13 of copending Application No. 10/683904 in view of Van Schaik et al. (6724460).

The '904 application teaches a purge gas but fails to teach oxygen or the concentration of oxygen. Van Schaik et al. teach the concentration of the oxygen containing species up to 20% for purposes of increasing the cleaning effectiveness in order to remove large amounts or particularly strongly adsorbed contaminants. It would have been obvious to a person of ordinary skill in the art to have modified the method of '904 to include an oxygen containing species and increasing the concentration of the oxygen containing species, as taught by Van Schaik et al. for purposes of increasing the cleaning effectiveness in order to remove contaminants.

Response to Arguments

12. Applicant argues that Somekh in view of Alvarez fail to remove contaminants from the substrate before purified gas contacts the substrate. Applicant's arguments are unpersuasive since the whole purpose of the instant invention is to remove contaminants from the substrate surface using the purge gas, the claimed limitations read on the teachings of Somekh for the reasons recited above.

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13. Applicant further argues that Somekh removes carbon deposits and not AMC.

Applicant's arguments are unpersuasive since Somekh teaches removing hydrocarbon vapor (col. 6, lines 1-4). In reference to Alvarez, all arguments are deemed moot since the reference is no longer required to meet the claim limitations.

14. Applicant argues that the prior art suggests no reasonable expectation of success using oxygen as a purge gas to remove contaminants. Applicant's arguments are unpersuasive since several references such as Somekh and Van Schaik et al. teach using oxygen for purging of contaminated surfaces.

15. Applicant argues that there is no motivation to combine Somekh and Alvarez. Applicant's arguments are moot in view of the withdrawal of Alvarez. The examiner has not conceded to applicant's arguments by no means. The reference is no longer needed in view of the newly amended claim language. Additionally, there would be sufficient motivation to combine the teachings of Somekh in view of Alvarez since both references are directed to photolithography.

16. Applicant further argues that Van Schaik teaches away from using a purge gas that includes oxygen. Applicant is directed to col. 4, lines 5-7 which teaches a purge gas comprising oxygen containing species. Col. 7, lines 41-43 teaches molecular oxygen and water.

17. Applicant argues that Somekh fails to teach a silicon substrate. Applicant is directed to col. 10-11 bridging. In reference to Straaijer, all arguments are deemed moot in view of the withdrawal of this reference. Additionally, in reference to claims 20-21, 23, and 25-26 the claims are rejected for the reasons set forth above.

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18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-1297. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sharidan Carrillo
Primary Examiner
Art Unit 1746

bsc



SHARIDAN CARRILLO
PRIMARY EXAMINER